


Appendix F: Noise Report

I-93 Salem to Manchester

Noise Barrier Data

SALEM

LOCATION 1: I-93 Northbound (Stations 1005-1045)

Includes Residences along Haigh Avenue, Streeter Avenue, Hanson Avenue, Spencer Avenue and Azarian Drive.

120 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 66 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 61 to 71 BA.

2020 Build Noise Levels: Approximately 77 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 64 to 75 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier¹ will be 12 feet high (12 feet wall, 0 feet berm) and approximately 4,500 feet long. Estimated barrier cost is \$1,080,000 and would provide a 5 dBA benefit or greater for 90 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$12,000

A noise barrier is recommended for this location (Stations 1000-1045).

LOCATION 2: I-93 Southbound (Stations 1050-1020)

Includes Residences along Valeska Lane and Cross Street.

50 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 6 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 56 to 70 dBA.

2020 Build Noise Levels: Approximately 6 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 61 to 73 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 13 feet high (8 feet wall, 5 feet berm) and approximately 1,600 feet long. Estimated barrier cost is \$336,000 and would provide a 5 dBA benefit or greater for 7 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$48,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective
- Wetland Impacts

LOCATION 3: I-93 Southbound (Stations 1075-1050)

Includes Residences along Cross Street and Brady Ave.

¹ Barrier costs were estimated using a Wall cost of \$20 / Sq. ft and a Berm cost of \$10 / Sq. ft

35 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 6 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 62 to 68 dBA.

2020 Build Noise Levels: Approximately 6 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 63 to 73 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and approximately 1,500 feet long. Estimated barrier cost is \$ 420,000 and would provide a 5 dBA benefit or greater for 6 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$70,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

LOCATION 4: I-93 Northbound (Stations 1070-1090)

Includes Residences along McLarnon Road and MacGregor Street.

110 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 19 residential receptor locations will approach the noise abatement criteria. The existing sound levels range from 59 to 66 dBA.

2020 Build Noise Levels: Approximately 33 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (11 feet wall, 3 feet berm) and approximately 2,500 feet long (Sta. Estimated barrier cost is \$625,000 and would provide a 5 dBA benefit or greater for 22 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$28,400

A noise barrier is recommended for this location (Stations 1070-1095).

LOCATION 5: I-93 Northbound (Stations 1110-1120)
Includes Residences along Woodland Terrace and Trolley Lane.

25 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 12 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 58 to 67 dBA.

2020 Build Noise Levels: Approximately 12 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 58 to 71 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 16 feet high (16 feet wall, 0 feet berm) and approximately 2,000 feet long. Estimated barrier cost is \$640,000 and would provide a 5 dBA benefit or greater for 16 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$40,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective
- Wetlands

LOCATION 6: I-93 Southbound (Stations 1115-1100)
Includes Residences along Lowell Road and Fern Road.

70 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 20 residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 60 to 68 dBA.

2020 Build Noise Levels: Approximately 22 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 72 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 15 feet high (15 feet wall, 0 feet berm²) and will be approximately 1,700 feet long. Estimated barrier cost is \$ 510,000 and would provide a 5 dBA benefit or greater for 26 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$19,600

A noise barrier is recommended for this location (Stations 1117-1100).

² The cost criteria shows that the barrier is cost effective with out any berm; however, berm will likely be used in this location (due to the temporary construction bypass roadway) to further reduce the cost of the barrier.

LOCATION 7: I-93 Northbound (Stations 1195-1215)
Includes Residences along Brookdale Road and South Shore Road.

25 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 10 residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 60 to 70 dBA.

2020 Build Noise Levels: Approximately 17 receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 73 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (0 feet wall, 14 feet berm) and approximately 2,200 feet long. Estimated earth-berm barrier cost is \$308,000 and would provide a 5 dBA benefit or greater for 15 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$20,500

A noise barrier is recommended for this location (Stations 1195-1217) Note: This barrier is proposed to be combined with Location 9.

LOCATION 8: I-93 Southbound (Stations 1220-1195)
Includes Residences along May Lane Drive and Jewell Drive.

40 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 7 residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 59 to 67 dBA.

2020 Build Noise Levels: Approximately 8 residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 12 feet high (12 feet wall, 0 feet berm) and approximately 1,500 feet long. Estimated barrier cost is \$ 436,000³ and would provide a 5 dBA benefit or greater for 19 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$23,000

A noise barrier is recommended for this location (Stations 1220-1205).

³ Cost reflects addition earth-berm work on the angled ends of the barrier, due to lower elevations.

WINDHAM

LOCATION 9: I-93 Northbound (Stations 1210-1230) **Includes Residences along South Shore Road.**

14 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 14 Residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 66 to 70 dBA.

2020 Build Noise Levels: Approximately 14 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 67 to 72 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (7 feet wall, 7 feet berm) and 2,000 feet long. Estimated barrier cost is \$420,000 and would provide a 5 dBA benefit or greater for 14 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$30,000

A noise barrier is recommended for this location (Stations 1210-1230). Note: This barrier is proposed to be combined with Location 7.

LOCATION 10: I-93 Southbound (Stations 1255-1230) **Includes Residences along Squire Armour Road.**

16 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 1 Residential receptor location exceeds the noise abatement criteria. The Existing sound levels ranged from 48 to 65 dBA.

2020 Build Noise Levels: Approximately 1 Residential receptor location exceeds the noise abatement criteria. The 2020 Build sound levels ranged from 49 to 66 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 1,500 feet long. Estimated barrier cost is \$ 420,000 and would provide a 5 dBA benefit or greater for 3 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$140,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

ALTERNATIVE A (Northbound Shift)

LOCATION 11-A: I-93 Northbound (Stations 1255-1275) **Includes Residences along Wildwood and Robin Hood Road.**

25 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 8 Residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 58 to 68 dBA.

2020 Build Noise Levels: Approximately 10 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 59 to 70 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (12 feet wall, 2 feet berm) and 2,000 feet long. Estimated barrier cost is \$ 520,000 and would provide a 5 dBA benefit or greater for 18 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$28,900

A noise barrier is recommended for this location (Stations 1255-1275).

LOCATION 12-A: I-93 Southbound (Stations 1290-1270) **Includes Residences along Route 111A and Locust Road.**

13 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 4 Residential receptor locations approach the noise abatement criteria. The Existing sound levels ranged from 58 to 66 dBA.

2020 Build Noise Levels: Approximately 4 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 58 to 68 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 2,000 feet long. Estimated barrier cost is \$ 560,000 and would provide a 5 dBA benefit or greater for 6 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$93,300

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

NHDOT proposes a privacy fence at this location.

LOCATION 13-A: I-93 Northbound (Stations 1280-1290)
Includes Residences along West Shore Road and Route 111A.

5 residential receptor locations included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 57 to 61 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 58 to 62 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

A noise barrier is NOT recommended for this location.

LOCATION 13 Center A: I-93 Northbound (Stations 1275-1290)
Includes Residences between I-93 Northbound and I-93 Southbound.

2 residential receptor locations included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 55 to 60 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 58 to 62 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

A noise barrier is NOT recommended for this location.

ALTERNATIVE B (Northbound/Southbound Tight Shift)

LOCATION 11-B: I-93 Northbound (Stations 1255-1275)
Includes Residences along Wildwood and Robin Hood Road.

25 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 8 Residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 58 to 68 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 52 to 58 dBA.

Project Impacts: The proposed project will reduce existing sound levels at this location.

A noise barrier is NOT recommended for this location.

LOCATION 12-B: I-93 Southbound (Stations 1290-1270)
Includes Residences along Route 111A and Locust Road.

13 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 4 Residential receptor locations approach the noise abatement criteria. The Existing sound levels ranged from 58 to 66 dBA.

2020 Build Noise Levels: Approximately 4 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 58 to 68 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 2,000 feet long. Estimated barrier cost is \$ 560,000 and would provide a 5 dBA benefit or greater for 6 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$93,300

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

NHDOT proposes a privacy fence at this location.

LOCATION 13-B: I-93 Northbound (Stations 1280-1290)
Includes Residences along West Shore Road and Route 111A.

5 residential receptor locations included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 57 to 61 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 53 to 58 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

A noise barrier is NOT recommended for this location.

LOCATION 13 Center B: I-93 Northbound (Stations 1275-1290)
Includes Residences between I-93 Northbound and I-93 Southbound.

2 residential receptor locations included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 55 to 60 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 62 to 64 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

A noise barrier is NOT recommended for this location.

LOCATION 14 East: I-93 Northbound (Stations 1340-1370)

Includes Residences along Gov. Dinsmore Road, Mockingbird Hill Road, and Heath Road.

23 residential receptor locations included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 54 to 64 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 55 to 65 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

A noise barrier is NOT recommended for this location.

LOCATION 14: I-93 Southbound (Stations 1450-1420)

Includes Residences along North Lowell Road and Country Road.

27 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 3 Residential receptor locations approach or exceed the noise abatement criteria. The Existing sound levels ranged from 58 to 68 dBA.

2020 Build Noise Levels: Approximately 3 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 59 to 70 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 3,000 feet long. Estimated barrier cost is \$ 840,000 and would provide a 5 dBA benefit or greater for 6 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$140,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

LOCATION 15: I-93 Northbound (Stations 1430-1450)

Includes Residences along North Lowell Road and Morrison Road.

16 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 4 Residential receptor locations approach the noise abatement criteria. The Existing sound levels range from 58 to 66dBA.

2020 Build Noise Levels: Approximately 4 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels ranged from 58 to 67 dBA.

Project Impacts: The proposed project will result in no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 2,000 feet long. Estimated barrier cost is \$560,000 and would provide a 5 dBA benefit or greater for 4 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$140,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

DERRY

LOCATION 16: I-93 Southbound (Stations 1505-1480)

Includes Residences along Spinnaker Drive.

45 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 4 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 51 to 65 dBA.

2020 Build Noise Levels: Approximately 4 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 51 to 66 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 16 feet high (11 feet wall, 5 feet berm) and 2,800 feet long. Estimated barrier cost is \$756,000 and would provide a 5 dBA benefit or greater for 14 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$54,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

LOCATION 17: I-93 Southbound (Stations 1520-1505)

Includes Residences along Tracey Drive.

20 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 52 to 66 dBA.

2020 Build Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 54 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (5 feet wall, 9 feet berm) and will be 1,500 feet long. Estimated barrier cost is \$285,000 and would provide a 5 dBA benefit or greater for 7 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$40,700

A noise barrier is NOT recommended for this location because:

- Not Cost Effective
- Prime Wetland Impacts

LOCATION 18: I-93 Southbound (Stations 1535-1520)

Includes Residences along Fordway Extension.

20 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 57 to 69 dBA.

2020 Build Noise Levels: Approximately 3 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 58 to 71 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 16 feet high (16 feet wall, 0 feet berm) and 785 feet long. Estimated barrier cost is \$ 251,200 and would provide a 5 dBA benefit or greater for 4 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$62,800

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

NHDOT proposes a privacy fence at this location.

LOCATION 19: I-93 Northbound (Stations 1535-1560)

Includes Residences along Matthew Drive, Derryfield Road, and Friar Tuck Lane.

80 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 14 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 55 to 66 dBA.

2020 Build Noise Levels: Approximately 14 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 58 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 16 feet high (16 feet wall, 0 feet berm) and 1,500 feet long. Estimated barrier cost is \$480,000 and would provide a 5 dBA benefit or greater for 26 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$18,500

A noise barrier is recommended for this location (Stations 1548-1563).

LONDONDERRY

LOCATION 20: I-93 Southbound (Stations 1600-1580)

Includes Residences along Charleston Avenue.

40 residential receptor locations were included in the noise analysis (including two apartment buildings).

Existing Noise Levels: Approximately 12 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 52 to 66 dBA.

2020 Build Noise Levels: Approximately 12 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 55 to 69 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 18 feet high (18 feet wall, 0 feet berm) and 2,800 feet long. Estimated barrier cost is \$1,008,000 and would provide a 5 dBA benefit or greater for 25 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$40,300

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

NHDOT proposes a privacy fence at this location.

LOCATION 21: I-93 Northbound (Stations 1630-1640)

Includes Residences along Reo Lane.

5 residential receptor locations included in the noise analysis.

Existing Noise Levels: Approximately 2 Residential receptor locations approach the noise abatement criteria. The existing sound levels range from 58 to 66 dBA.

2020 Build Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 1,000 feet long. Estimated barrier cost is \$280,000 and would provide a 5 dBA benefit or greater for 3 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$93,300

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

LOCATION 22: I-93 Northbound (Stations 1645-1655)
Includes Residences along Ash Street.

10 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 2 Residential receptor locations approach the noise abatement criteria. The existing sound levels range from 62 to 66 dBA.

2020 Build Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 65 to 70 dBA.

Project Impacts: The proposed project will have a slight to moderate increase from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 1,000 feet long. Estimated barrier cost is \$280,000 and would provide a 5 dBA benefit or greater for 3 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$93,300

A noise barrier is NOT recommended for this location because:

- Not Cost Effective

LOCATION 23: I-93 Southbound (Stations 1695-1655)
Includes Residences along Trolley Car Lane.

35 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 23 Residential receptor locations approach the noise abatement criteria. The existing sound levels range from 59 to 66 dBA.

2020 Build Noise Levels: Approximately 23 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 60 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 12 feet high (6 feet wall, 6 feet berm) and 5,000 feet long. Estimated barrier cost is \$ 900,000 and would provide a 5 dBA benefit or greater for 28 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$32,100

A noise barrier is recommended for this location (Stations 1703-1653).

LOCATION 24: I-93 Northbound (Stations 1688-1715)
Includes Residences along Seasons Lane.

22 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 10 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 56 to 70 dBA.

2020 Build Noise Levels: Approximately 10 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 57 to 71 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (8 feet wall, 6 feet berm) and 2,500 feet long. Estimated barrier cost is \$ 550,000 and would provide a 5 dBA benefit or greater for 19 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$29,000

A noise barrier is recommended for this location (Stations 1688-1713).

LOCATION 25: I-93 Northbound (Stations 1745-1790)
Includes Residences along Rockingham Road.

27 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 2 Residential receptor locations approach the noise abatement criteria. The existing sound levels range from 49 to 66 dBA.

2020 Build Noise Levels: Approximately 2 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 52 to 69 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 1,000 feet long. Estimated barrier cost is \$280,000 and would provide a 5 dBA benefit or greater for 2 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$140,000

A noise barrier is NOT recommended for this location because:

- Not Cost Effective
- NH Route 28 Noise Source

LOCATION 26: I-93 Southbound (Stations 1760-1750)
Includes Residences along Perkins Road.

5 residential receptor locations were included in the noise analysis.

Existing Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 49 to 62 dBA.

2020 Build Noise Levels: No residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 51 to 63 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: No sound barrier required.

Cost Criteria: Not applicable.

A noise barrier is NOT recommended for this location.

MANCHESTER

LOCATION 27: I-93 Northbound (Stations 1915-1925)

Includes Residences along Newton's Meadow Way.

51 residential receptor locations were included in the noise analysis (including ten apartment buildings).

Existing Noise Levels: Approximately 21 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 54 to 67 dBA.

2020 Build Noise Levels: Approximately 21 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 56 to 69 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 1,500 feet long. Estimated barrier cost is \$420,000 and would provide a 5 dBA benefit or greater for 36 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$11,700

A noise barrier is recommended for this location (Stations 1912-1927).

LOCATION 28: I-93 Northbound (Stations 1945-1970)

Includes Residences along Bodwell Road.

40 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 15 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound levels range from 50 to 68 dBA.

2020 Build Noise Levels: Approximately 15 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound levels range from 51 to 69 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: The barrier will be 14 feet high (14 feet wall, 0 feet berm) and 2,500 feet long. Estimated barrier cost is \$700,000 and would provide a 5 dBA benefit or greater for 27 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$25,900

A noise barrier is recommended for this location (Stations 1946-1971).

LOCATION 29: I-93 Northbound (Stations 2005-2025)
Includes Residences along Cohas Avenue.

35 residential receptor locations were included in the noise analysis.

Existing Noise Levels: Approximately 11 Residential receptor locations approach or exceed the noise abatement criteria. The existing sound level is 50 to 67 dBA.

2020 Build Noise Levels: Approximately 11 Residential receptor locations approach or exceed the noise abatement criteria. The 2020 Build sound level is 51 to 68 dBA.

Project Impacts: The proposed project will have no noticeable change from existing sound levels at this location.

Preliminary Barrier Requirements: Parallel to the impacted residents the southbound barrel is approximately 15 to 20 feet higher in elevation than the northbound barrel. Therefore an unusually high barrier (20 to 30 feet high and 2,000 feet long) would be required for the residences to get a noticeable reduction in noise at this location. In addition to that there is also a stream that runs parallel to the interstate within the right-of-way, which prohibits the use of any earth-berm at this location. The estimated barrier cost is \$1,000,000 and would provide a 5 dBA benefit or greater for 14 residential receptor locations.

Cost Criteria: Cost per 5dBA or greater benefited receptor = \$71,400

A noise barrier is NOT recommended for this location because:

- **Not Cost Effective**
- **I-93 SB Raised Elevation**
- **Wetlands**
- **Uneven Ledge Outcrops within NHDOT ROW**



Appendix G: Determination of Effects for Historical Resources



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



CAROL A. MURRAY
Commissioner

GILBERT S. ROGERS
Assistant Commissioner

Salem-Manchester
IM-IR-93-1(174) 0
10418C
Page 1

Effect Memo

Pursuant to meetings and discussions between March 16, 1989 and July 9, 2000 and on October 15, 2000, January 4, March 1, April 5, July 1 and 12, August 2, September 6 and 11, and December 6, 2001, February 13, March 14, and May 2, 2002, and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources and the NH Division of the Federal Highway Administration have coordinated the identification and evaluation of historic and archaeological properties with plans to reconstruct Interstate 93 between the Massachusetts border to Interstate 293 in the towns of Salem, Windham, Derry, and Londonderry, and the City of Manchester, New Hampshire.

Based on a review pursuant to 36 CFR 800.4 of the historical and architectural significance of identified resources and the potential significance for archaeological remains in the project area, we agree that the following individual properties and districts are eligible for listing in the National Register of Historic Places:

Individually Eligible Properties:

SAL204	Kinzler House
WND085	Robert Armstrong House
WND206	Indian Rock
WND085	George Armstrong House
WND033	George Dinsmore House
LON116	Robert Prowse Bridge
LON114	Reed Paige Clark Homestead
LON103	Shepard House
LON105	Gearty House
LON117	Moody House
MAN010	Clark House

Eligible Districts:

SAL-Area AF	Armenian Settlement Historic District
LON-Area WO	Woodmont Orchards Historic District
MAN-Area WW	Manchester Low Service Pumping Station
WND- Area F	Searles Castle Historic District

Areas of archaeological sensitivity and archaeological sites have been identified for the project alternatives.

Applying the criteria of effect at 800.5, we have determined that the project alternatives will have adverse effects on the following properties: George Armstrong House, Robert Armstrong House, George Dinsmore House, Woodmont Orchards Historic District, Robert Prowse Bridge, and the Gearty House. The Preferred Alternative impacts all of these properties except for the Woodmont Orchards Historic District. Depending on the chosen alternative, these effects may include slope impacts, limited property taking, and total property acquisition with building removal. The appropriate phases of archaeological investigations will be completed for impacted sensitive areas and archaeological sites when the Selected Alternative is chosen.

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

Linda Ray Wilson OSHPO

Linda Wilson, Deputy
State Historic Preservation Officer

Harry S. Kinter

for Kathleen O. Laffey, Administrator
Federal Highway Administration

Concurred with by the New Hampshire Department of Transportation:

Date: August 8, 2002

By:

Joyce McKay

Joyce McKay, Cultural Resources Manager

c.c. Harry Kinter Jeff Brillhart
 Linda Wilson Marc Laurin

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: ---
Area: LON-WO (LON- D1)
Town/City: Londonderry
Map/Parcel:
Eligible Acreage: 196.003 acres
County: Rockingham

Property name: Woodmont Orchards Historic District
Address: Pillsbury Road/Ash Street, Appletree Lane
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

- | NR | SR |
|-------------------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> Eligible (district N/A) |
| <input type="checkbox"/> | <input type="checkbox"/> Eligible, also in district |
| <input type="checkbox"/> | <input type="checkbox"/> Eligible, only in district |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Not evaluated for individual eligibility
(except for affected properties) |
| <input type="checkbox"/> | <input type="checkbox"/> Listed in the National Register of Historic Places |

Districts

- | NR | SR |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Eligible |
| <input type="checkbox"/> | <input type="checkbox"/> Not eligible |
| <input type="checkbox"/> | <input type="checkbox"/> Not evaluated as a district |
| <input type="checkbox"/> | <input type="checkbox"/> Listed in the National Register of Historic Places |

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☒ A. Event ☒ B. Person ☐ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The Woodmont Orchards Historic District is eligible for the National Register for its historic associations with the commercial apple growing industry and with the significant contributions of Rosencrans Pillsbury and William Lievens to it. In the 20th century, apple growing "quickly outpaced all other agricultural pursuits" in Londonderry and the region. Woodmont is the largest of five commercial orchards remaining in town today and continues to be owned and operated by the Lievens family.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☒ location ☒ setting ☒ use

☒ (b) **Adverse effect:** may diminish the integrity of ☒ design ☒ setting ☒ materials ☒ workmanship ☒ feeling ☒ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) **No historic properties affected:** there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: 3-Lane alternative – East: No 4(f) and no Section 106 impacts.
3-Lane alternative – West: 4(f) and Section 106 slope impacts.
4-Lane alternative – East: No 4(f) and no Section 106 impacts.
4-Lane alternative – West: 4(f) and Section 106 slope impacts.

Mitigation: Avoid impacts by using the East alternative.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: SAL0204
Area: ---
Town/City: Salem
Map/Parcel: 127/8919
Eligible Acreage: 5.79 acres
County: Rockingham

Property name: Kinzler House

Address: 19 Cross Street

Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☒ A. Event ☐ B. Person ☐ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The Kinzler Property is eligible for the National and New Hampshire State Registers of Historic Places for its historical associations with road agent Bill Kinzler and NH's Good Roads Movement as it unfolded in the town of Salem throughout the early 20th century. The property's history is also an interesting illustration of the "professionalization" of town government in New Hampshire, moving from the efforts of individuals -- at times in their homes -- to a more formal municipal organization.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☐ location ☒ setting ☐ use

☐ (b) **Adverse effect:** may diminish the integrity of ☐ design ☐ setting ☐ materials ☐ workmanship ☐ feeling ☐ association. Adverse effects include but are not limited to:
(1) physical destruction, damage, or alteration of all / part of the property;
(2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
(3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
(4) neglect of a property resulting in its deterioration or destruction; and
(5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**
(1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
(2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
(3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☒ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: There may be 4(f) impacts from acquisition of right of way or slope work, but they would not constitute an adverse effect on National Register-eligible characteristics of the property, so there would be no Section 106 effects.

Mitigation: Minimize slope work and right of way acquisition.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: WND0085
Area: ---
Town/City: Windham
Map/Parcel: a portion of 17-G/26
Eligible Acreage:
County: Rockingham

Property name: George F. Armstrong House
Address: 86 Range Road
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☐ Setting ☒ Materials ☒ Workmanship ☐ Feeling ☐ Association

Criteria: ☐ A. Event ☐ B. Person ☒ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The George F. Armstrong House was determined to be eligible for the National Register of Historic Places under criterion "C," "as one of the best examples of a late 19th century vernacular wood-framed gable-front dwelling in Windham." The farm complex with barn, barnyard, and connected sheds once associated with it has been converted into a restaurant, and it has been extensively altered and expanded. As a result, the boundary of the eligible property now includes only the footprint of the house and its character-defining domestic space (primarily its front and east side yard) between the house and road, but excluding the much-altered barn.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☒ location ☒ setting ☒ use

☒ (b) **Adverse effect:** may diminish the integrity of ☒ design ☒ setting ☒ materials ☒ workmanship ☒ feeling ☒ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: Options 1-6: No 4(f) and no Section 106 impacts. Options 7-9: 4(f) and Section 106 adverse effects.

Mitigation: Record to HABS standards; market with a protective easement for relocation in an appropriate setting; allocate a portion of demolition costs as an incentive for relocation.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: WND0086
Area: ---
Town/City: Windham
Map/Parcel: 17-G/30
Eligible Acreage: 0.82 acres
County: Rockingham

Property name: Robert Armstrong House
Address: 88 Range Road
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☐ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☐ Association

Criteria: ☐ A. Event ☐ B. Person ☒ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The Robert Armstrong House is eligible for the National Register under criterion "C," as a very fine local example of an early Federal period 2 1/2 story x 5-bay one room deep dwelling. It is further distinguished by the high quality, integrity and originality of its interior features and finishes. It also retains some historic landscape features, including two large trees which frame the roadside view and define its dooryard. Later 19th century additions to rear are in the nature of "connected architecture," a reflection of its history as a farmhouse.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☒ location ☒ setting ☒ use

☒ (b) **Adverse effect:** may diminish the integrity of ☒ design ☒ setting ☒ materials ☒ workmanship ☒ feeling ☒ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: Options 1-6: No 4(f) and no Section 106 impacts. Options 7-9: 4(f) and Section 106 adverse effects from purchase and removal of the dwelling.

Mitigation: Record to HABS standards; market with a preservation easement for relocation in an appropriate setting; allocate a portion of demolition costs as an incentive for relocation. Because of the very high architectural quality and historical intactness of this house, investigate the feasibility and practicability of NH DOT relocating it to a suitable setting and providing a foundation, water and sewer / well and septic system to facilitate marketing and resale with a protective easement to buyers seeking a historic dwelling to preserve.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: WND0033
Area: ---
Town/City: Windham
Map/Parcel: 17-J/80
Eligible Acreage: 1.1
County: Rockingham

Property name: George Dinsmore House
Address: 86 Indian Rock Road
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☐ A. Event ☐ B. Person ☒ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The George Dinsmore House is eligible for the National Register as a "distinctive and well-executed local example of the Craftsman Style executed in stone, reflecting the strong influence the construction of Searles Castle had on the architecture of the area." Its entire 1.1 acre parcel is eligible, as it encompasses the dwelling, stone outbuildings, and mature trees that reinforce its historic setting

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☐ location ☒ setting ☐ use

☐ (b) **Adverse effect:** may diminish the integrity of ☐ design ☐ setting ☐ materials ☐ workmanship ☐ feeling ☐ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☒ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: For both 3 and 4 Lane alternatives: Options 1, 2 and 7: no Section 106 effects; potential 4(f) effects from slope work; Options 3-6, 8 and 9: no 4(f) or Section 106 effects.

Mitigation: Select an alternative which avoids the property, or minimize the slope work.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: WND0206
Area: ---
Town/City: Windham
Map/Parcel: 11C-125
Eligible Acreage:
County: Rockingham

Property name: Indian Rock

Address: off Route 111 (Indian Rock Road)
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☐ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☒ A. Event ☐ B. Person ☐ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: Indian Rock is a large natural boulder with a circular depression on top, "traditionally held to be the site where Native American inhabitants of the Windham area pounded corn....first mentioned in L.A. Morrison's 1883 history of Windham." A preservation committee was formed by the town in 1932 and a bronze commemorative plaque was placed on the rock by the town in 1933. The consultant noted that "The impetus for commemorating the rock may have been the heavy construction going on along Indian Rock Road at the time. Windham turned Indian Rock Road over to state control in 1932, and several campaigns of road work straightened the route from its original, winding path."

A report prepared by Victoria Bunker, Ph.D., dated May 24, 2002, confirmed that the Indian Rock area has no archaeological sensitivity, "due to the area's setting on sloping and irregular, stony terrain, removed from surface water features, in a landscape not considered attractive for habitation during prehistoric times." The use of Indian Rock as a mortar is also doubtful, as it "lacks features typically associated with known mortar stones."

However, the entire site has historic value as a commemorative property. The DOE Committee concurred with the consultant's recommendation that Indian Rock is eligible for the National Register under Criteria Consideration "F," representing "the early 20th century Colonial Revival movement's interest in colonial history and desire to preserve relicts of that history. The erection of the plaque on the rock is symbolic of the value Windham residents put on the former Native American population of the area....and [it] is mentioned as an important historical property in every townwide historical publication since 1883."

36 CFR 800.9 Criteria of Effect & Adverse Effect

- ☐ (a) Effect: undertaking may alter National Register-qualifying characteristics and features of:
☐ location ☐ setting ☐ use
- ☐ (b) Adverse effect: may diminish the integrity of ☐ design ☐ setting ☐ materials ☐ workmanship
☐ feeling ☐ association. Adverse effects include but are not limited to:
(1) physical destruction, damage, or alteration of all / part of the property;
(2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
(3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
(4) neglect of a property resulting in its deterioration or destruction; and
(5) transfer, lease, or sale of the property.
- ☐ (c) Otherwise adverse effects may be considered not adverse:
(1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research....in accordance with professional standards and guidelines;
(2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
(3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.
- ☒ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: No alternative will have 4(f) or Section 106 impacts on Indian Rock and the commemorative area.

Mitigation: None required.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: LON0116
Area: ---
Town/City: Londonderry
Map/Parcel:
Eligible Acreage: less than 1 acre
County: Rockingham

Property name: Robert J. Prowse Memorial Bridge

Address: Ash Street over Interstate-93

Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☐ A. Event ☐ B. Person ☐ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☐ Local ☐ State ☐ National

Description: The Robert J. Prowse Memorial Bridge is considered eligible for the National Register, in accordance with 36 CFR 800.4(c)(2), under Criterion C and Criteria Consideration G, for its exceptional importance in the history of New Hampshire bridge engineering. Only four steel rigid frame bridges are known in New Hampshire: this one, designed as early as 1958 and built c. 1962; bridge 092/121 over the Ashuelot River in Gilsum, designed by the NH Highway Dept. in 1935; the Canal Street approach to the Notre Dame Bridge in Manchester, designed by J.R. Worcester and Co. of Boston in 1936 and demolished c.1988, and the East Side Road bridge over Route 393 in Concord, designer and date on file at NHDOT. Concrete rigid frames are more common in New Hampshire and have been evaluated as a bridge type through the Historic Bridge Inventory; many were determined to be eligible for the National Register. The Gilsum bridge was determined to be eligible in 1999.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☒ location ☒ setting ☒ use

☒ (b) **Adverse effect:** may diminish the integrity of ☒ design ☒ setting ☒ materials ☒ workmanship ☒ feeling ☒ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify the property for the National Register.

Comments: Both east and west alternatives will require widening the bridge opening to accommodate vehicle and rail traffic, and will have 4(f) and Section 106 adverse effects.

Mitigation: Record bridge to HAER standards; market for relocation; provide the original bridge plaque to the Town of Londonderry; prepare and install a commemorative marker between the replacement bridge and new bike path to recognize the bridge and its NH designer; place an enlarged captioned photograph of the bridge in the NH DOT lobby;

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: LON0114
Area: ---
Town/City: Londonderry
Map/Parcel: 13/21, 13/20 and 13/22
Eligible Acreage: 114.39 acres
County: Rockingham

Property name: Reed Paige Clark Homestead
Address: 79 Stonehenge Road
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Not eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☒ A. Event ☐ B. Person ☒ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The Reed Paige Clark Homestead is eligible for the National Register of Historic Places both for its significant agricultural history and as an extremely well-preserved example of connected farm architecture, executed in stone and in the Greek Revival style.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☐ location ☒ setting ☐ use

☐ (b) **Adverse effect:** may diminish the integrity of ☐ design ☐ setting ☐ materials ☐ workmanship ☐ feeling ☐ association. Adverse effects include but are not limited to:
(1) physical destruction, damage, or alteration of all / part of the property;
(2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
(3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
(4) neglect of a property resulting in its deterioration or destruction; and
(5) transfer, lease, or sale of the property.

☒ (c) **Otherwise adverse effects may be considered not adverse:**
(1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
(2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
(3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify the property for the National Register.

Comments: All alternatives: 4(f) impacts and Section 106 "no adverse effect" from strip acquisition along the highway in an area that is disturbed by previous construction, and not traditionally part of the agricultural operations because of its topography.

Mitigation: None required.

(July 1993)

NHDHR Determination of Eligibility / Effect (36 CFR Part 800)

Project: I-93 Improvement Project, Salem-Manchester
Date of group review: March 14, 2002
Participants:

Inventory #: LON0105
Area: Meadow Estates (Area PS)
Town/City: Londonderry
Map/Parcel: 16-88
Eligible Acreage: 1.5 acres
County: Rockingham

Property name: Gearty House
Address: 117 Rockingham Road
Agency: NHDOT

Reviewed for: ☒ R&C DOT # 10418c

Individual Properties

NR	SR
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eligible (district N/A)
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district
<input type="checkbox"/>	<input type="checkbox"/> Eligible, only in district
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Districts

NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input checked="" type="checkbox"/>	<input type="checkbox"/> Not eligible
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated as a district
<input type="checkbox"/>	<input type="checkbox"/> Listed in the National Register of Historic Places

Integrity: ☒ Location ☒ Design ☒ Setting ☒ Materials ☒ Workmanship ☒ Feeling ☒ Association

Criteria: ☐ A. Event ☐ B. Person ☒ C. Architecture/Engineering ☐ D. Archaeology ☐ E. Exception

Level: ☒ Local ☐ State ☐ National

Description: The Gearty House is a large Ranch-style residence. It is considered eligible for the National Register, in accordance with 36 CFR 800.4(c)(2), under Criterion C and Criteria Consideration G.

The Meadow Estates subdivision was found to be ineligible for the National Register as a historic district, so this property is not part of a larger historic district.

36 CFR 800.9 Criteria of Effect & Adverse Effect

☒ (a) **Effect:** undertaking may alter National Register-qualifying characteristics and features of:
☐ location ☒ setting ☐ use

☒ (b) **Adverse effect:** may diminish the integrity of ☐ design ☒ setting ☐ materials ☐ workmanship
☐ feeling ☐ association. Adverse effects include but are not limited to:

- (1) physical destruction, damage, or alteration of all / part of the property;
- (2) isolation from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) introduction of visible, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) neglect of a property resulting in its deterioration or destruction; and
- (5) transfer, lease, or sale of the property.

☐ (c) **Otherwise adverse effects may be considered not adverse:**

- (1) When the property is of value only for potential contribution to...research, and when such value can be substantially preserved through...appropriate research...in accordance with professional standards and guidelines;
- (2) when the undertaking is limited to rehabilitation of buildings & structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with The Secretary of the Interior's Standards for Rehabilitation, and Guidelines for Rehabilitating Historic Buildings; or
- (3) when the undertaking is limited to transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

☐ (d) No historic properties affected: there are no historic properties present OR historic properties are present, but the undertaking will not alter any characteristics that would qualify a property for the National Register.

Comments: All alternatives: 4(f) and Section 106 adverse impacts from right of way acquisition and slope work.

Mitigation: Minimize acquisition and slope work to avoid this property.



Appendix H: NHDOT Conceptual Relocation Plan

**STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION**

FROM: Linda Smith *LTS 8-1-02* **DATE:** August 1, 2002
Brian Sanderson *BRS-8-1-02*
Relocation Advisors

SUBJECT: Salem-Manchester, IM-IR-93-1(174), 10418C **AT:** Dept. of Transportation
Conceptual Study Bureau of Right of Way

TO: Jeff Brillhart
Director of Project Development

THRU: Chip Johnson *CJ 8/6/02*
Relocation Advisor

A study was conducted on the above referenced project as to the number of possible displacements. This report follows the guidelines prescribed by the New Hampshire Department of Transportation, Right-of-Way Relocation Policy and Procedures Manual, Chapter 10, and the FHWA Technical Advisory dated October 30, 1987.

I. The attached is an estimate of the displacements likely to occur. It is understood that design modifications may ultimately change the total number of displacements on the selected alignment.

All the estimated acquisition costs include only those complete acquisitions that comprise land and buildings and do not reflect any partial acquisitions of land only.

The estimated acquisition costs were derived by preliminary estimates of costs developed by the Department's Bureau of Right-of-Way Appraisal Section. They do not reflect costs generated by in-depth appraisals.

In general, the social and economic characteristics of the displacees appear to place them in the middle-income bracket. There appears to be no special ethnic or racial make-up of the families likely to be displaced. Any individual with disabilities or elderly displacees will be specifically identified prior to the acquisition stage and their special needs addressed accordingly.

II. A survey was conducted of available replacement housing from local realtor listings. The survey indicated an adequate number of functionally similar, decent, safe and sanitary residential dwellings for sale in the project area and surrounding towns to accommodate displacees. The current market indicates adequate replacement homes for sale containing three to four bedrooms. Prices range from \$250,000.00 to \$500,000.00.

III. Due to the large number of impacts associated with certain alternatives, there may be some large-scale impacts to those neighborhoods. It does not appear, however, that there will be a need for special relocation considerations at this time.

IV. The preferred alignment cannot be implemented without causing displacement to approximately 35 active businesses.

Displaced businesses **may** be eligible for relocation benefits, which will include Relocation Advisory Assistance Services. An eligible business may also choose from:

- Payments for actual reasonable moving expenses and
 - Business Re-establishment expense
- OR**
- Fixed business payment

There is a fair supply of available commercial properties, with the exception of service station sites, selling from between \$400,000.00 and \$1,300,000.00.

V. Through public informational meetings and discussions with local officials, area residents and property owners, the Department has been made aware of the general concerns as well as some specific concerns with respect to the displacement of homes and businesses. At this time it would appear that relocating residential displacees and businesses could be accomplished with minimal hardship. This would not necessarily include service station properties and others with relatively unique environmental, community and location requirements.

VI. Available housing in the area appears to be sufficient and within the financial needs of the displacees. Last resort housing will be made available if the need presents itself in accordance with Chapter 10 of the New Hampshire Department of Transportation, Right-of-Way Relocation Policy and Procedures Manual.

VII. The acquisition and the relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. A Relocation Advisor will be assigned to manage any relocation problems of the affected parties.

Any further information or assistance regarding displacements on this project may be obtained by contacting the New Hampshire Department of Transportation Relocation Section. Physical evidence of this report is available through the Bureau of Right-of-Way, John O. Morton Building, 1 Hazen Drive, Concord, New Hampshire.

BUSINESSES POTENTIALLY TO BE DISPLACED

PG #	PARCEL	OWNERS NAME & ADDRESS	BUSINESS NAME & ADDRESS	# OF EMPLOYEES
5	S-182	Arthur & Alice M. Cook 11 Trolley Lane Salem, NH	Cook Construction 11 Trolley Lane Salem, NH	2
5	S-182	Arthur & Alice M. Cook 11 Trolley Lane Salem, NH	Wood Service 11 Trolley Lane Salem, NH	2
5	S-182	Arthur & Alice M. Cook 11 Trolley Lane Salem, NH	T&T Towing Service 11 Trolley Lane Salem, NH	2
5	S-173	Central Gas Company, Inc. Rte. 3 Plymouth, NH	Flight Line Inc. 8 Raymond Ave. Salem, NH	3
5	S-173	Daniel E. Crafts 8 Alyssa Dr. Derry, NH	Cars International 8 Raymond Ave. Salem, NH	4
5	S-173	Daniel E. Crafts 8 Alyssa Dr. Derry, NH	Line-X-Truck liners 8 Raymond Ave. Salem, NH	4
9	S-81	Larry J. Minassian 33 Pelham Rd. Salem, NH	Lucy's Convenience 33 Pelham Rd. Salem, NH	4
10	W-105	Windham Coop Kindergarten PO Box 250 Windham, NH	Windham Coop Kindergarten 89 Range Rd. Windham, NH	6
11	W-104	Theresa Etal Foden 90 Range Rd. Windham, NH	Commercial Tire Services 90 Range Rd. Windham, NH	1
11	W-104	Theresa Etal Foden 90 Range Rd. Windham, NH	General Contractor 90 Range Rd. Windham, NH	1
11	W-104	Theresa Etal Foden 90 Range Rd. Windham, NH	Office 90 Range Rd. Windham, NH	1
11	W-106	Alexander L. Ray PO Box 581 Ashland, NH	Data Grater 85 Range Rd. Windham, NH	3
12	W-103	Alexander L. Ray PO Box 581 Ashland, NH	Common Man 86 Range Rd. Windham, NH	60
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Dinsmore Assoc. Prudential 115 Indian Rock Rd. Windham, NH	14
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Dr. RA Workman, Dentist 115 Indian Rock Rd. Windham, NH	12
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Merrimack Gas Techn. 115 Indian Rock Rd. Windham, NH	1
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Positive Pathways 115 Indian Rock Road Windham, NH	2
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Key Net, Richard Mahoney 115 Indian Rock Rd. Windham, NH	3

PG #	PARCEL	OWNERS NAME & ADDRESS	BUSINESS NAME & ADDRESS	# OF EMPLOYEES
12	W-95	M.L. Dinsmore Rev. Trust 115 Indian Rock Rd. Windham, NH	Citizens Bank 115 Indian Rock Rd. Windham, NH	10
13	W-100	G. Sargris, F. Cafua, M. Quinn 16 Golden Meadow PO Box 11 Hampstead, NH	DunKin Donuts 98 Indian Rock Rd. Windham, NH	35
13	W-100	G. Sargris, F. Cafua, M. Quinn 16 Golden Meadow PO Box 11 Hampstead, NH	All-Cell 98 Indian Rock Rd. Windham, NH 03841	2
13	W-100	G. Sargris, F. Cafua, M. Quinn 16 Golden Meadow PO Box 11 Hampstead, NH	Vacant	0
13	W-99	Sun Oil Company 1801 Market St. Philadelphia, PA	Sunoco Plus 94 Indian Rock Rd. Windham, NH	10
14	W-44	Turnbridge Associates Inc. George & Marion Dinsmore 115 Indian Rock Rd.	Exxon Gas & Convenience 1 Wyman Rd. Windham, NH	12
15	W-43	Indian Rock Realty, LLC 5 Woodvue Rd. Windham, NH	AJ Letzio Sales & Mangmnt 91 Indian Rock Rd. Windham, NH	27
15	W-35	Anthony & David Mesiti Trst. 231 Sutton St #2F North Andover, MA	Computer Auto 61 Indian Rock Rd Windham, NH	10
17	D-24	CMS Limited 66 Kendall Pond Rd. Derry, NH	Cellular One Voicestream Albuquerque, NM	0
18	L-174	Christina Enter Realty Trust 41 Londonderry Rd. Londonderry, NH	Recor Trading 41 Londonderry Rd. Londonderry, NH	3
19	L-130	Aranco Realty, Inc. 557 North State Street Concord, NH	Sunoco Plus 137 Rockingham Rd. Londonderry, NH	22
20	L-75	Maccor-Londonderry LLC 1 Jefferson Dr. Londonderry, NH	Regency Senior Day Care 172 Rockingham Rd. Londonderry, NH	8
20	L-79	Clyde M. Mckabe Revoc. Trust 12 Dexter St. Derry, NH	Cycle World 168 Rockingham Rd. Londonderry, NH	6
20	L-79	Clyde M. Mckabe Revoc. Trust 12 Dexter St. Derry, NH	Island Fireworks 168 Rockingham Rd. Londonderry, NH	5
20	L-79	Clyde M. Mckabe Revoc. Trust 12 Dexter St. Derry, NH	Masters Self Defense Centers 168 Rockingham Rd. Londonderry, NH	4
20	L-79	Clyde M. Mckabe Revoc. Trust 12 Dexter St. Derry, NH	MPV Trailer Sales 168 Rockingham Rd. Londonderry, NH	5
21	L-81	TFS Properties, LLC 14 Howard St Rockland, MA	Exxon 162 Rockingham Rd Londonderry, NH	12
21	L-82	Waste Management Holdings PO Box 1450 Chicago, IL	Waste Management 160 Rockingham Rd. Londonderry, NH	15 to 20

PREFERRED ALTERNATIVE

SEGMENT A – South of Cross Street

Residences - 1

1 – Single Family Residence

Acquisition Cost = \$225,000.00

Relocation Cost = \$ 31,500.00

Total = \$256,500.00

SEGMENT B – Option – Relocate

Residences – 5

3 – Single Family Residences

1 – Garage Unit

1 – 5 Unit - Multi-Family

Acquisition Cost = \$ 1,535,000.00

Relocation Cost = \$ 152,250.00

Total = \$ 1,687,250.00

SEGMENT C – Option – Diamond

Businesses – 4

3 Unit Businesses – one structure – 1 owner

1 Business/Residential

Residences - 2

2 Single Family Residences

Acquisition Cost = \$ 1,075,000.00

Relocation Cost = \$ 174,500.00

Total = \$ 1,249,500.00

SEGMENT C – Park and Ride

Businesses - 3

3 Unit Businesses – one structure – 2 owners

Residences– 7

6 Single Family Residences

1 Vacant Residence (par. 151)

Acquisition Cost = \$3,300,000.00

Relocation Cost = \$ 295,750.00

Total = \$3,595,750.00

SEGMENT D – Option – 8

Businesses – 19

- 5 – single unit businesses
- 1 – residential/business
- 1 - 6 unit businesses – 2 structures – one owner
- 2 – 3 unit businesses
- 1 – Non Profit Organization

Residence - 1

- 1 – single family residence

Acquisition Cost = \$7,575,000.00
Relocation Cost = \$ 498,250.00
Total = \$8,073,250.00

SEGMENT E – Option – East

Businesses – 2

- 2 – Business

Residences – 3

- 3 – Single family Residences

Acquisition Cost = \$ 933,000.00
Relocation Cost = \$ 374,500.00
Total = \$1,307,500.00

SEGMENT F – Option – Reconstruct NH 28

Businesses – 0

Residences - 0

SEGMENT F - Exit 5 Park & Ride Option 2

Businesses – 1

- 1 – Business

Acquisition Cost = \$2,000,000.00
Relocation Cost = \$ 260,000.00
Total = \$2,260,000.00

PREFERRED ALTERNATIVE TOTAL:

Acquisition Cost = \$16,643,000.00
Relocation Cost = \$ 1,786,750.00
Total = \$18,429,750.00

LAS/BRS

cc: James Moore, Administrator

	Widening Options by Segment																								
	Salem						Windham									Derry/ Londonderry		Londonderry/ Manchester							
	A	B		C			D									E		F							
	South of Cross Street	Exit 1		Exit 2			Exit 3									Exit 4		Exit 5							
		Reconstruct (see Note # 1)	Relocate (see Note # 1)	Loop (see Note # 2)	Diamond	Park & Ride	I-93 NB Shift						I-93 NB/SB Tight Shift			East	West	Relocate NH 28	Reconstruct NH 28	Relocate NB Ramps	Exit 5 Park & Ride option 1 (NW Quadrant)	Exit 5 Park & Ride Option 2 (NW Quadrant)	Exit 5 Park & Ride Option 3 (Perkins Road)	Exit 5 Park & Ride Option 4 (SE Quadrant)	Exit 5 Park & Ride Option 5 (Auburn Road)
NH111: On-Line NB Ramp: Loop w/alt SB Ramp: Diamond	NH111: On-Line NB Ramp: Diamond SB Ramp: Diamond						NH 111: Full Relocation NB Ramp: Loop w/alt SB Ramp: Diamond	NH 111: Full Relocation NB Ramp: Diamond SB Ramp: Diamond	NH 111: Full Relocation NB Ramp: Loop w/alt SB Ramp: Loop	NH 111: Full Relocation NB Ramp: Diamond SB Ramp: Diamond	NH111: On-Line NB Ramp: Diamond	NH 111: Full Relocation NB Ramp: Diamond	NB Ramp: Diamond	SB Ramp: Diamond	NH 111: Full Relocation NB Ramp: Diamond										
						Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9											
Single Family Residences	1	3	4	3	2	7			1	1	1	1		1	1	3	3						1		
Multi Family		1	1																						
Bus./ Res. Properties				1	1				1	1	1	1		1	1										
Business Properties				1	1	1	5	5	6	6	7	7	7	8	9	2	2	1	0	0	1	3	0	1	
# Residential Units	1	7	8	4	3	7			2	2	2	2		2	2	3	3					0	0	1	
# Business Units				4	4	3	14	14	16	16	17	17	16	18	19	2	2	3	0	0	1	6	0	3	
Res. Acquisition Costs	\$225,000.00	\$1,035,000.00	\$1,535,000.00	\$3,075,000.00	\$875,000.00	\$1,700,000.00	\$0.00	\$0.00	\$600,000.00	\$600,000.00	\$600,000.00	\$600,000.00	\$0.00	\$600,000.00	600,000.00	\$615,000.00	\$660,000.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$1,000,000.00	
Res. Relocation Costs	\$31,500.00	\$120,750.00	\$152,250.00	\$126,000.00	\$94,500.00	\$195,750.00	\$0.00	\$0.00	\$38,250.00	\$38,250.00	\$38,250.00	\$38,250.00	\$0.00	\$38,250.00	38,250.00	\$94,500.00	\$94,500.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$38,250.00	
Business Acquisition Costs	\$0.00	\$0.00	\$0.00	\$200,000.00	\$200,000.00	\$1,600,000.00	\$3,525,000.00	\$3,525,000.00	\$5,375,000.00	\$5,375,000.00	\$6,175,000.00	\$6,175,000.00	\$5,125,000.00	\$6,975,000.00	7,775,000.00	\$318,000.00	\$318,000.00	\$2,000,000.00	\$0.00	\$0.00	\$1,500,000.00	\$2,000,000.00	\$0.00	\$2,000,000.00	\$0.00
Business Relocation Costs	\$0.00	\$0.00	\$0.00	\$80,000.00	\$80,000.00	\$100,000.00	\$340,000.00	\$340,000.00	\$400,000.00	\$400,000.00	\$420,000.00	\$420,000.00	\$400,000.00	\$460,000.00	480,000.00	\$280,000.00	\$280,000.00	\$140,000.00	\$0.00	\$0.00	\$40,000.00	\$260,000.00	\$0.00	\$140,000.00	\$0.00
TOTAL	\$256,500.00	\$1,155,750.00	\$1,687,250.00	\$3,481,000.00	\$1,249,500.00	\$3,595,750.00	\$3,865,000.00	\$3,865,000.00	\$6,413,250.00	\$6,413,250.00	\$7,233,250.00	\$7,233,250.00	\$5,525,000.00	\$8,073,250.00	8,893,250.00	\$1,307,500.00	\$1,352,500.00	\$2,140,000.00	\$0.00	\$0.00	\$1,540,000.00	\$2,260,000.00	\$0.00	\$2,140,000.00	\$1,038,250.00

SHADED COLUMNS INDICATE PREFERRED ALTERNATIVE

Preferred
Alternative TOTAL: \$18,429,750.00

- NOTE # 1

S-38 included in report as residential parcel w/ garage structure
Not included in report as livable residential unit
- NOTE # 2

Assumes total acquisition of parcel S-78 (8.55 acres).
Removal of house is required but total property acquisition is not.

